

EXISTING AND POTENTIAL BENEFICIAL USES IN REACH 83 OF THE SAN JOAQUIN RIVER (MECED RIVER INFLOW TO VERNALIS)

PRESENT BASIN PLAN DESIGNATIONS

The beneficial uses are defined in Chapter II of the Sacramento River and San Joaquin River Water Quality Control Plan (Basin Plan). Chapter II of the Basin Plan states that *“Beneficial uses are critical to water quality management in California”*. State law defines beneficial uses of California's waters that may be protected against quality degradation to include (and not be limited to) *“...domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves”* (Water Code Section 13050(f)). In addition, Porter Cologne Section 13241 requires that “past, present, and probable future beneficial uses of water” be considered in establishing water quality objectives. The basin Plan also emphasizes that “Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning.”

The Basin Plan describes several points that need to be considered in setting and protecting beneficial uses. These include:

1. *“All water quality problems can be stated in terms of whether there is water of sufficient quantity or quality to protect or enhance beneficial uses.”*
2. *“Beneficial uses do not include all of the reasonable uses of water. For example, disposal of wastewaters is not included as a beneficial use. This is not to say that disposal of wastewaters is a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of other beneficial uses. Similarly, the use of water for the dilution of salts is not a beneficial use although it may, in some cases, be a reasonable and desirable use of water.”* The finding and pronouncement that management of salt is an important consideration in the use of water is significant as it defines the policy of the Board to not exclude the management of salt within existing water supplies provided it is not done to the detriment of other beneficial uses.
3. *“The protection and enhancement of beneficial uses require that certain quality and quantity objectives be met for surface and ground waters.”*
4. *“Fish, plants, and other wildlife, as well as humans, use water beneficially. Beneficial use designation (and water quality objectives, see Chapter III) must be reviewed at least once during each three-year period for the purpose of modification as appropriate (40 CFR 131.20).”*

Chapter II of the Basin Plan defines 21 categories of uses that could be applied to surface water in the Central Valley, including the San Joaquin River. The 21 categories are described below in Table A along with a standard definition that has been used in statewide basin plan designations. Some of the 21 categories of use could be applied to

the Lower San Joaquin River but have not been designated in the Basin Plan. Also, designated uses in the Basin Plan may no longer exist or the potential exist for their use. A review needs to be conducted to determine whether any of the presently designated uses need to be changed or eliminated and whether new designations need to be applied. This section will review the past, present and future beneficial use designations. This is a required step prior to recommending appropriate salt and boron water quality objectives.

BASIN PLAN DESIGNATIONS THAT APPLY TO SURFACE WATERS

Existing and potential beneficial uses which currently apply to surface waters of the Sacramento River and San Joaquin River Basins are presented in Table II-1 of the Basin Plan. Although this is not part of the present study on beneficial use designations for the Lower San Joaquin River, the Basin Plan states that *“The beneficial uses of any specifically identified water body generally apply to its tributary streams. In some cases a beneficial use may not be applicable to the entire body of water. In these cases the Regional Water Board’s judgment will be applied. It should be noted that it is impractical to list every surface water body in the Region. For unidentified water bodies, the beneficial uses will be evaluated on a case-by-case basis.”*

Surface water bodies within the Sacramento River and San Joaquin River Basins that do not have beneficial uses designated in Table II-1 are assigned MUN designations in accordance with the provisions of State Water Board Resolution No. 88-63 which was, by reference, made part of the Basin Plan. State Water Board Resolution No. 88-63 states that *“All surface waters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards with the exception of surface waters where:*

- a. The total dissolved solids (TDS) exceed 3,000 mg/L (5,000 uS/cm, electrical conductivity) and it is not reasonably expected by the Regional Board to supply a public water system; or*
- b. There is contamination, either by natural processes or by human activity (unrelated to the specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices; or*
- c. The water is in systems designed or modified to collect or treat municipal or industrial wastewaters, process waters, mining wastewaters, or storm water runoff, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards; or*
- d. The water is in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards; or*

- e. *The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.”*

Although exception (e) is directed at groundwater, the intent is that there needs to be a sustainable yield of the stream in order for the Regional Water Board to find that the stream is reasonably expected to supply a public water system. It is doubtful that an ephemeral stream would be capable of supplying a sustainable yield sufficient to supply a public water system thus not meeting this reasonable test criterion.

Under State Water Board Resolution No. 88-63, the Regional Water Board was also given the authority to amend use designations as it saw fit. The policy stated that *“Any body of water which has a current specific designation previously assigned to it by a Regional Water Board in Water Quality Control Plans (Basin Plan) may retain that designation at the Regional Water Board's discretion. Where a body of water is not currently designated as MUN but, in the opinion of a Regional Water Board, is presently or potentially suitable for MUN, the Regional Water Board shall include MUN in the beneficial use designation.”* State Water Board Resolution No. 88-63 also states that *“the Regional Water Boards shall also assure that the beneficial uses of municipal and domestic supply are designated for protection wherever those uses are presently being attained, and assure that any changes in beneficial use designations for waters of the State are consistent with all applicable regulations adopted by the Environmental Protection Agency.”*

In order to comply with State Water Board Resolution No. 88-63 at the least cost, the Regional Water Board blanket designated MUN to all water bodies without any evaluation or assessment. Thus all the water bodies in the San Joaquin River Basin have an MUN designation regardless of whether it is feasible or reasonable. This blanket designation leaves the entire Region with an MUN designation in all water bodies in spite of the statement in the Basin Plan that states that *“In making any exemptions to the beneficial use designation of MUN, the Regional Water Board will apply the exception listed in Resolution 99-63.”*

Beneficial uses that are designated for the Lower San Joaquin River in Table II-1 of the Basin Plan are outlined in Table B of this report. Beneficial uses designated by the Regional Water Board in the Basin Plan for the Lower San Joaquin River from the Mendota Dam to Vernalis include a potential domestic supply (MUN) use; agriculture irrigation and stock watering (AGR); industrial process supply (PROC); contact (REC-1) and non-contact (REC-2) recreation; warm freshwater habitat (WARM); warm and cold-water species migration (MIGR); warm-water spawning (SPWN); and wildlife habitat (WILD). The potential for cold-water spawning upstream of the Merced River inflow (SPWN) is also designated.

This Basin Plan Amendment review is focused on only Reach 83 of the Lower San Joaquin River as described in the Basin Plan as the San Joaquin River from the *Mouth of the Merced River to Vernalis*. The remainder of this review of beneficial uses will concentrate on Reach 83.

APPROACH TO BENEFICIAL USE EVALUATION

When looking at salinity (EC) and boron (B) in the water supply, the evaluation of beneficial uses must look beyond just uses associated with salinity and boron and take a broader look at all beneficial uses in Reach 83 of the Lower San Joaquin River. The review should conclude with one of three options for conclusion. The options are to propose no changes to the existing beneficial use designations in Table II-1 of the Basin Plan, propose modifying existing beneficial use designations including proposing adoption of new beneficial use designations or definitions; or propose clarifying the level of beneficial use that is being achieved with the present designation.

When considering beneficial uses designations for surface waters, aquatic life uses are normally the most sensitive uses. However with salinity and boron, irrigation and municipal and domestic water supplies are often the most sensitive uses. Recent listings for Reach 83 of the San Joaquin River under Section 303(d) of the Clean Water Act for salinity and boron have been associated with the irrigation and municipal and domestic water supplies uses and not aquatic life uses.

Irrigation has normally been considered the most sensitive beneficial use for salt and boron in the Lower San Joaquin River. The establishment of water quality objectives for salinity at Vernalis for protection of Southern Delta agriculture is an example of this. As part of the process of establishing these objectives at Vernalis, the State Water Board directed the Regional Water Board to evaluate whether salinity objectives are needed upstream for protection of both in-basin uses and Southern Delta agriculture. In addition, water from the Reach 83 of the Lower San Joaquin River finds its way to the pumping facilities at the headwaters of the Delta Mendota Canal and the California Aqueduct. Water diverted by these pumping facilities is transported through the Delta Mendota Canal and the California Aqueduct for irrigation use elsewhere.

Under the Sources of Drinking Water Policy (State Water Board Resolution 88-63) described above, the Reach 83 of the Lower San Joaquin River continues to be designated for the potential beneficial use of municipal and domestic supply. As described above, In addition, water from the Reach 83 of the Lower San Joaquin River flows into the Sacramento – San Joaquin Delta which provides drinking water to over 22 million people in California (CalFed, 2005).

In this review, three options will be reviewed.

Option 1 - No Change - The no change option would reflect that the current designations are appropriate and protective of current or future uses of water in Reach 83 of the Lower San Joaquin River.

Option 2 - Modify Existing Uses: The original beneficial use designations shown in Table B of this review (Table II-1 of the Basin Plan) were defined in 1972 during the initial development of the Basin Plan. Little or no evaluation of changes in beneficial use along the Lower San Joaquin River has been conducted since that time. Newer uses may

be made of this river reach or older beneficial uses may have been suspended due to changing economic and cultural practices in the river basin and downstream.

There may be the need to define new beneficial use designations to reflect the changing demographics and land use in the watersheds, including those downstream, which are dependent upon Reach 83 of the Lower San Joaquin River. Beneficial uses that are described in the Basin Plan definitions but are not presently designated may need to be included as well as consideration needs to be made for whether new or redefined definitions or descriptions of beneficial uses need to be made.

Option 3 – Clarify the Intensity of Present Use Designations: The original beneficial use designations shown in Table B of this review (Table II-1 of the Basin Plan) were defined in 1972 during the initial development of the Basin Plan. These designations were established based on the limited data available at that time and were considered adequate in light of the requirement in §303(c) of the Clean Water Act that the water quality standards in the Basin Plan (beneficial uses designations are part of the federal water quality standards) be reevaluated every 3 years (triennial review) and that the California Water Code §13240 required a periodic review of the basin plan, including the beneficial uses designations. Unfortunately little or no re-evaluation of changes to beneficial use designations along Reach 83 of the Lower San Joaquin River has been conducted since the original 1972 designations. This option requires a reassessment of the present beneficial use designations as to whether the intensity or level of beneficial use may have changed since 1972.

REVIEW OF PRESENTLY LISTED BENEFICIAL USES

The San Joaquin River on the valley floor as defined in Table II-1 in the Basin Plan includes four separate reaches extending from Friant Dam to Vernalis (see Table B). The Lower San Joaquin River as defined in the Basin Plan includes three of these four reaches and extends from the Mendota Dam to Vernalis. The project area for establishment of water quality objectives for salinity and boron includes only Reach 83 which is the most downstream reach from the Mouth of the Merced River inflow to below the Stanislaus River inflow (Vernalis). The review of beneficial uses conducted here will concentrate only on Reach 83 of the Lower San Joaquin River which is described in Table II-1 of the Basin Plan as the reach from the Mouth of the Merced River inflow to Vernalis (Airport Way Bridge).

Municipal and Domestic Supply (MUN): Municipal and domestic use is designated as a potential beneficial use for Reach 83 of the Lower San Joaquin River (Mouth of the Merced River inflow to Vernalis). The potential designation has been in existence since the original Basin Plan was adopted in 1975. Surveys of actual use were conducted in 1950, 1975 and again in 1985 and it showed that no such uses or diversions were being made of the River for either municipal or domestic use. The State Water Board in the report from the Technical Committee for WQ Order 85-1 did a complete review of beneficial use on the San Joaquin River from the Salt Slough inflow (upstream of the

Merced River Mouth) to Vernalis and noted that no municipal or domestic supply uses were being made nor did any appear to exist and that such a use was unlikely, therefore the Regional Water Board should consider removing this use designation from the Basin Plan. Due to financial constraints and the need to deal with the higher priority selenium issue, the change to the designation was never considered by the Regional Water Board.

In 1988, the State Water Board under Resolution 88-63 reconsidered the designation of MUN for all waters of the state. It was decided under Resolution 88-63 that all waters of the state should be designated as either existing or potential MUN beneficial use unless they met one of the exemption criteria. None of the exemption criteria apply to Reach 83 of the Lower San Joaquin River.

This review and supported by the previous State Water Board report from the Technical Committee for WQ Order 85-1 shows that it is unlikely that the MUN beneficial use would move from the present designation of “potential beneficial use” to an existing or probable use in the near future. The potential beneficial use has been listed for almost 40 years and no entity or plan has been developed or is in the works for a municipal or domestic use of Reach 83. The development of a municipal or domestic use would be unlikely under present conditions as this reach of the river is fully appropriated at the present time and it is unlikely that any new use would be permitted in the future without the transfer of water rights from another entity. A transfer of water rights is unlikely as many are pre-1914 rights that cannot be transferred. In addition there are no existing water right permits for municipal or domestic use and no pending or anticipated applications for such a use or transfer of water.

The Lower San Joaquin River from Friant Dam to Vernalis is highly regulated and Reach 83 from the Merced River inflow to Vernalis is made up primarily of operational releases for irrigation use and aquatic life protection. In addition, flow in this reach is made up of groundwater accretions from poor quality groundwater and agricultural return flows of varying quality. As a result, river flow and quality in Reach 83 from the Merced River inflow to Vernalis are highly variable thus has little or no potential as a municipal or domestic supply. There is the expectation of new or increased flow requirements in Reach 83 due to the State Water Board reevaluation of the flow requirements for protection of aquatic life and salmon migration into and through the Delta. This flow however is being designated for aquatic life protection and thus would not be available for diversion for other uses, including municipal and domestic supply.

There is also an expectation that increased flows will occur in Reach 83 as a result of the San Joaquin River Restoration Program which is a program to re-water the San Joaquin River from below Friant Dam to the Merced River inflow. These flows however would not be available for re-diversion for other uses as they are designated in the settlement agreement for aquatic life protection above the Merced River inflow and are available for re-diversion downstream of the Merced River inflow only for recapture of water for the federal Friant project. It is also unlikely that any of the water in Reach 83 of the Lower San Joaquin River, even if water rights were obtained, would be available for diversion for municipal or domestic uses as the California Department of Public Health’s Drinking

Water Division have stated in correspondence with the Regional Water Board and the Stanislaus County Health Department that they will not permit a municipal or domestic use of the Lower San Joaquin River in Reach 83 (Merced River inflow to Vernalis) under any conditions. This department regulates all municipal and domestic (public water systems) water supply systems. Stanislaus County encompasses almost 95 % of the Lower San Joaquin River in Reach 83.

Although there is no existing public water supply system use of water in Reach 83 of the Lower San Joaquin River and none is anticipated in the foreseeable future, there will continue to be incidental use of the river water for drinking water purposes. Short term or incidental use by campers, fisherman and other river users as part of contact recreational activities can be expected to continue in spite of deliberate drinking of river water being discouraged by the county and State health officials.

This review shows that as seen in 1975 and again in 1985, there is little likelihood that municipal or domestic uses are present or likely to occur in the future as envisioned by State Water Board Resolution 88-63. It should be made clear to the users of the Basin Plan, that consistent with the State Water Board Resolution 88-63, Reach 83 of the San Joaquin River will remain with a designation of “potential” beneficial use but the only actual uses are likely to be the continued incidental uses that occur during recreational and short-term activities in and near the river. It is recommended that Table II-1 of the Basin Plan be modified to reflect the incidental use that occurs and is likely to continue to be the highest intensity of use in the foreseeable future.

Agricultural Use (AGR): Agricultural use both for irrigation and stock watering is designated in Table II-1 of the Basin Plan as an existing use in Reach 83 of the Lower San Joaquin River (Merced River inflow to Vernalis). A review of potential agricultural diversions and use was conducted along Reach 83 of the Lower San Joaquin River by the Regional Water Board (James et al., 1989). During this review a total of 46 points of diversion for irrigation were identified in Reach 83. Based on a review of water right applications, permits and statements, these diversion points are capable of irrigating slightly over 50,000 acres.

There are four major diverters in Reach 83 of the Lower San Joaquin River. The largest diversion for irrigation is the West Stanislaus Irrigation District which irrigates approximately 21,666 acres, followed by Patterson Irrigation District which irrigates approximately 13,555 acres, Twin Oaks Irrigation Company which irrigates approximately 6,380 acres and the El Solyo Water District which irrigates approximately 3,780 acres. These four diverters deliver water to over 90% of the land potentially irrigated from water diverted from Reach 83 of the Lower San Joaquin River. This level of use shows that the AGR beneficial use is a major use in Reach 83 of the Lower San Joaquin River and will continue to be in the foreseeable future.

The AGR beneficial uses continues to be the dominant use made of the river and therefore there is no recommendation for a change from the present “existing” beneficial use designation.

Industrial Process Supply (PROC): Industrial Process Supply (PROC) is designated as an existing (E) beneficial use of the San Joaquin River for the entire Lower San Joaquin River from Friant Dam to Vernalis, including Reach 83 from the Merced River inflow to Vernalis. Surveys of Reach 83 in 1950, 1975 and again in 1985 showed that no such uses or diversions were being made of the River for industrial process supply although none of these surveys confirmed whether incidental use is being made as part of the agricultural harvest and processing.

There were originally two tallow plants along the river but these went out of business prior to the development of the original Basin Plan in 1975. One of these former plants was upstream of Merced River inflow in the area previously dewatered during development of the Friant Dam under the Central Valley Project.

Even though the beneficial use has been listed as “existing” for almost 40 years, the sites of these former tallow plants have either been removed or are abandoned with no entity or plan in the works to restore these sites for such a use. In addition there are no known plans to develop new sites along the river and there are no water right permits or applications pending for industrial process supply use.

In addition, the San Joaquin River from the Merced River inflow to Vernalis is highly regulated and made up primarily of operational releases for irrigation use, groundwater accretions from poor quality groundwater and agricultural return flows of varying quality. The variability in flow and water quality makes Reach 83 highly variable thus not a potential constant industrial supply source. Although it is not recommended to remove the present “*Existing*” use designation, users of the Basin Plan should be made aware that the likelihood of a consistent use of river water for Industrial Process supply is unlikely and will remain, at best, an incidental use as part of the agricultural harvest and processing that is associated with diversions for other agricultural uses and not a direct diversion for PROC use.

Industrial Service Supply (IND): There are no known or planned industrial service supply uses foreseen for Reach 83 of the Lower San Joaquin River therefore none is recommended for designation as a beneficial use.

Industrial Power Supply (POW): There are no known or planned power uses foreseen for Reach 83 of the Lower San Joaquin River and unlikely that any will be developed in the foreseeable future due to the variable flow and quality, especially sediment quality. Therefore it is not recommended for inclusion as a “potential” or “existing” beneficial use.

Water Contact (REC-1) and Non-Contact Recreation (REC-2): Reach 83 of the San Joaquin River is a major recreational site for local uses, including both contact and non-contact-type uses. Contact uses of the river include recreational activities where body contact with water is likely. Major uses on Reach 83 include but are not limited to, swimming, wading, diving, boating, rafting, canoeing, and fishing. Each of these may

involve ingestion of water whether planned or un-planned. Because of the high temperatures in the summer time, Reach 83 of the San Joaquin River is a magnet-type recreational area because of the presence of the water and the large shady riparian growth along the river's edge.

Reach 83 of the San Joaquin River also is a major area of indirect contact with the water, including many recreational activities that take place in and near the water where there is generally no body contact with water, nor any likelihood of ingestion of water. These include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities. These activities will continue due to presence of the San Joaquin River in an area of elevated temperatures.

Both REC-1 and REC-2 uses are present and will remain strong within Reach 83 the Lower San Joaquin River. Therefore there is no recommended change to the present "existing" beneficial use designation.

Warm and Cold Freshwater Habitat (WARM and COLD): Reach 83 of the San Joaquin River supports a warm water ecosystem. The quality of the water supply must support, preserve and enhance aquatic habitats, vegetation, fish, or wildlife, including invertebrates. Normally a WARM water habitat implies resident species and does not include the short-term migration of anadromous species. This is support by footnote (2) to Table II-1 of the Basin Plan. Numerous reports support the presence of resident warm water species, including those that are introduced species such as striped bass. Reach 83 of the San Joaquin River is presently designated as a WARM water habitat. This designation should not be changed.

The WARM characteristic of the Reach 83 of the San Joaquin River however does not support cold water ecosystems (COLD) as the substrate does not support optimum habitat and environment for egg development (pre-spawning), spawning, juvenile development and rearing and migration of smolts or young. Several of the tributaries to Reach 83 support COLD uses which are markedly different from those that support WARM-water species. At present Reach 83 is not designated as a COLD water habitat. It is recommended to continue to not list this reach as a COLD water habitat.

Migration of Aquatic Organisms (MIGR): In California, the migratory fish species are principally steelhead and rainbow trout (*Oncorhynchus mykiss gairdneri*), white sturgeon (*acipenser transmontanus*), American Shad (*Alosa sapidissima*), and Chinook salmon. All of these species potentially could use Reach 83 of the San Joaquin River as the tributaries provide habitat for both cold and warm water anadromous species. It is recommended that both the cold and warm-water migration be maintained for Reach 83 of the San Joaquin River.

Another species known to migrate to spawning sites is Striped Bass (*Morone saxatilis*). Striped bass however generally reside in estuaries and in sea water during a portion of their adult phase and migrate in the spring to large rivers to spawn. Striped bass have

been identified in the San Joaquin River, including in Reach 83, however, it is unlikely that their presence was due to migration for spawning purposes. More likely they were attracted for feeding purposes on other species.

Successful spawning of striped bass is dependent on the interaction of three factors: temperature, flow and salinity. Striped bass generally prefer to spawn in large rivers that have optimum spawning flows. Sufficient flow is required to maintain eggs and larvae suspended but not too high that eggs are washed into quiet waters. It is also possible that the higher salinity levels in Reach 83 of the San Joaquin River could impede striped bass spawning but additional research would be needed to confirm this. Because of the narrow tolerance of striped bass to these three factors, there are only two principal spawning areas and these are in the Delta. They are the Sacramento River from Isleton to Butte City and the San Joaquin River and its sloughs from Venice Island to Antioch (Moyle, 1976).

Modifying flows or lowering salinity levels to enhance striped bass spawning would need further study beyond the scope of this project and would likely meet with strong resistance. Striped bass are a non-native predator that impacts salmon and other California native anadromous fish. The National Marine Fisheries Service of the National Oceanographic and Atmospheric Administration (NOAA) has recently asked the California Department of Fish and Game to begin a program of limiting the impact of this predator on native anadromous fish and this includes suppression in Reach 83 of the San Joaquin River. Therefore the Water Quality Control Plan should not be singling this species out as an indicator of whether MIGR-WARM and SPWN-WARM protection are needed and should follow the lead of the NOAA and focus on native species over introduced species.

Warm Water Migration (MIGR-WARM) designation in Table II-1 of the Basin Plan has a footnote (3) attached to it. The footnote reads: (3) *Striped bass, sturgeon and shad*. It should be considered to remove striped bass from this footnote as they are now noted as a non-native predator on other native California anadromous fish.

Cold Water Migration (MIGR-COLD) designation in Table II-1 of the Basin Plan has a footnote (4) attached to it. The footnote reads: (4) *Salmon and steelhead*. This footnote does apply to Reach 83 (Merced River Inflow to Vernalis) and reflects current information that shows both steelhead and salmon use Reach 83 of the Lower San Joaquin River on their migration routes to the tributaries of the Lower San Joaquin River.

The footnote however may not be correct for those reaches upstream of the Merced River inflow. Table II-1 of the Basin Plan shows the three reaches of the San Joaquin River upstream of the Merced River confluence (Friant Dam to Mendota Pool, Mendota Dam to Sack Dam and Sack Dam to Mouth of Merced River) as critical habitat for steelhead and this is inconsistent with finding of the National Marine Fisheries Service of the National Oceanographic and Atmospheric Administration (NOAA, 2005). NOAA has concluded that the upstream boundary for critical habitat in the SJR is the Merced River confluence.

Showing steelhead in footnote (4) of Table II-1 of the Basin Plan may assert that CV steelhead are present and that habitat in the San Joaquin River from Friant Dam to Merced River confluence is critical habitat. This is incorrect. With respect to Critical Habitat, there is no critical habitat designated in counties south of Merced County (Federal Register / Vol. 70, No. 170 / Friday, September 2, 2005 / Rules and Regulations, page 52513, Response to Comment 87).

A copy of NOAA's 2005 critical habitat listing is available at <http://www.nwr.noaa.gov/Publications/FR-Notices/2005/upload/70FR52488.pdf>

Although not part of the present project, the Regional Board may want to consider modifying this footnote to more correctly describe the habitat findings of NOAA that steelhead are only found in the San Joaquin River from the Mouth of the Merced River to Vernalis and that salmon applies for all of the reaches of the San Joaquin River from Friant Dam to Vernalis.

Warm-Water Spawning, Reproduction and/or Early Development (SPWN-WARM): Reach 83 of the Lower San Joaquin River is an environment favorable to spawning of a variety of warm-water species. Warm water habitat, suitable water temperatures and substrate makes this reach of the river generally suitable for spawning of many warm-water species that are present in the river reach. Therefore warm water SPWN beneficial use is an existing use and the designation in Table II-1 in the Basin Plan should not be modified.

Warm-Water Spawning (SPWN-WARM) designation in Table II-1 of the Basin Plan has a footnote attached to it. The footnote reads: (3) *Striped bass, sturgeon and shad*. Consideration should be given to remove striped bass from this footnote.

Striped bass generally reside in estuaries and in sea water during a portion of their adult phase and migrate in the spring to large rivers to spawn. Striped bass have been identified in the San Joaquin River, including in Reach 83, however, it is unlikely that their presence was due to migration for spawning purposes and more likely they were attracted for feeding purposes on other species.

Successful spawning of striped bass is dependent on the interaction of three factors: temperature, flow and salinity. Striped bass generally prefer to spawn in large rivers that have optimum spawning flows. Sufficient flow is required to maintain eggs and larvae suspended but not too high that eggs are washed into quiet waters. Because of the narrow tolerance of striped bass to these three factors, there are only two principal spawning areas and these are in the Delta. These are the Sacramento River from Isleton to Butte City and the San Joaquin River and its sloughs from Venice Island to Antioch (Moyle, 1976).

In addition, striped bass are a non-native predator that impacts salmon and other anadromous fish. The National Marine Fisheries Service of NOAA has recently asked

the Department of Fish and Game to begin a program of limiting the impact of this predator on native anadromous fish and therefore the Water Quality Control Plan should not be singling this species out as an indicator of where SPWN-WARM protection needed.

Cold-Water Spawning, Reproduction and/or Early Development (SPWN-COLD):

Cold-water spawning is not presently designated as a beneficial use for Reach 83 of the Lower San Joaquin River in Table II-1 in the Basin Plan. This is the result of the river being on the Valley floor and lacking substrate and conditions, including water temperatures, which would be suitable for cold-water spawning. It is also unlikely that these conditions would change in the foreseeable future as climate change models presently show that the San Joaquin River and the San Joaquin River Basin will be considerably warmer in the future. No change to the present non-designation is recommended.

Wildlife Habitat (WILD): The large variation in river flow in the Lower San Joaquin River has resulted in a large river flood plain that is constricted between flood control levees. This area however has become a magnet for wildlife as the river has a continuous flow during most years. The riparian corridor has become fairly mature in vegetation and provides considerable habitat for terrestrial, avian and other terrestrial organisms, including invertebrates. The changes in flow regime being considered by the State Water Board will continue to enhance and support this riparian corridor.

WILD is presently a designated beneficial use for Reach 83 of the Lower San Joaquin River in Table II-1 in the Basin Plan. This use is not expected to change in the foreseeable future and it is not recommended to modify or change this beneficial use designation.

An increasing wildlife use of Reach 83 of the Lower San Joaquin River will be future development of the San Joaquin River National Wildlife Refuge on what was the Faith Ranch. The U.S. Fish and Wildlife Service purchased a conservation easement on most of the Faith Ranch in 1997. At that time the Faith Ranch was owned by Robert Gallo. The place of use designation for the RJ Gallo statement of water use (S014002) now shows that part of the San Joaquin River National Wildlife Refuge is included in the place of use.

Because of the expanding use of water on the San Joaquin River National Wildlife Refuge and the need to protect critical riparian habitat, it is recommended that a new beneficial use of BIOL be designated for Reach 83 of the Lower San Joaquin River in Table II-1 in the Basin Plan. The present beneficial use definition for **Preservation of Biological Habitats of Special Significance (BIOL)** serves and describes the uses that need to be protected. The present definition of “*Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection*” serves this need.

Commercial and Sport Fishing (COMM): The definition in the Basin Plan for this beneficial use is “*Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes*”. Sport and recreational fishing is widespread along Reach 83 of the Lower San Joaquin River. This use has been present for several decades and as urbanization of the areas to the east and west of the river continue, this use can be expected to increase as well. The quality of this use may vary or be limited by flow variations, including low flow conditions but it will not preclude the attainment of this use. Based on this observation, the sport and recreational beneficial (COMM) use should be added to Table II-1 in the Basin Plan as an existing use for Reach 83 of the San Joaquin River.

Navigation (NAV): The present definition in the basin plan for the NAV beneficial use states that it is intended for “*Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels*”. Due to the nature of the San Joaquin River, including depth, changes in flow and shifting bottom material, the use of the river in Reach 83 for any type of shipping, travel or transportation will be severely limited. The continued use of the river for recreational boating, including fishing will continue but will always be limited in size and depth of draw of the water craft used. These latter types of use are covered under the REC-1 and REC-2 beneficial use designations in Table II-1 of the Basin Plan. It is unlikely that larger commercial or transportation-type vessels will be utilizing Reach 83 of the Lower San Joaquin River in the foreseeable future. The NAV beneficial use is not presently designated in Table II-1 of the Basin Plan and it is not recommended to modify the present non-listing.

RECOMMENDATIONS

Beneficial Use Designations Recommended to be Changed in Table II-1 of the Basin Plan For Reach 83 of the San Joaquin River

The recommended changes to Reach 83 of the San Joaquin River (Merced River inflow to Vernalis) in Table II-1 of the Sacramento River and San Joaquin River Water Quality Control Plan (Basin Plan) are shown in yellow highlights in Table C in this report. The following is a summary discussion of those recommended changes

Change in Footnote (3) to Table II-1

Designation Needing a Change: Warm Water Migration (MIGR-WARM) and Warm Water Spawning (SPWN-WARM) have a footnote (3) attached to each. The footnote reads: (3) *Striped bass, sturgeon and shad*. It is recommended that we remove Striped bass from this footnote.

Reason for the Recommendation: Striped bass are a non-native predator that impact salmon and other native anadromous fish. The National Marine Fisheries Service of NOAA has recently asked the Department of Fish and Game to begin a program of limiting the impact of this predator on native anadromous fish in the Southern Delta and Lower San Joaquin River. Therefore the Water Quality Control Plan should not be singling this species out as an indicator of MIGR-WARM and SPWN-WARM protection needed.

Add Footnote (11) to Table II-1

Designation Needing a Change: The potential designation for Municipal and Domestic Supply needs to be clarified that any use in the foreseeable future will only be incidental use associated with recreational activities by fisherman, campers and other day-use activities.

Reason for the Recommendation: To date no such uses or diversions were being made of the River for either municipal or domestic use. The development of a municipal or domestic use would be unlikely under present or future conditions as this reach of the river is fully appropriated at the present time and it is unlikely that any new use would be permitted in the future without the transfer of water rights from another entity. A transfer of water rights is unlikely as many are pre-1914 rights that cannot be transferred. In addition there are no existing water right permits for municipal or domestic use and no pending or anticipated applications for such a use or transfer of water.

Even if water rights were obtained and it is unlikely that they would be available for diversion for municipal or domestic uses as the California Department of Public Health's Drinking Water Division have stated in correspondence with the Regional Water Board and the Stanislaus County Health Department that they will not permit a municipal or domestic use of the Lower San Joaquin River in Reach 83 (Merced River inflow to Vernalis) under any conditions. This department regulates all municipal and domestic (public water systems) water supply systems.

Although there is no existing public water supply system use of water in Reach 83 of the Lower San Joaquin River and none is anticipated in the foreseeable future, there will continue to be incidental use of the river water for drinking water purposes. Short term or incidental use by campers, fisherman and other river users as part of contact recreational activities can be expected to continue in spite of deliberate drinking of river water being discouraged by the county and State health officials.

Add Footnote (12) to Table II-1 and Change the Existing Designation to an Existing but Limited Beneficial Use Designation

Designation Needing a Change: The existing designation for Industrial Process Supply needs to be clarified that there is likely to be “Limited” use in the foreseeable future will only be incidental use associated with field agricultural harvesting and processing operations associated with diversions for other agricultural activities.

Reason for the Recommendation: To date no uses or diversions were being made of the River for Industrial Process Supply. Even though the beneficial use has been listed as “existing” for almost 40 years, there are not existing sites and no entity or plan in the works to restore the former sites for such a use. In addition there are no known plans to develop new sites along the river and there are no water right permits or applications pending for industrial process supply use.

In addition, the San Joaquin River from the Merced River inflow to Vernalis is highly regulated and made up primarily of operational releases for irrigation use, groundwater accretions from poor quality groundwater and agricultural return flows of varying quality. The variability in flow and water quality makes Reach 83 a poor source for industrial process supply. Although it is not recommended to remove the present “*Existing*” use designation, users of the Basin Plan should be made aware that the likelihood of a consistent use of river water for Industrial Process supply is unlikely and will remain, at best, an incidental use as part of the agricultural field harvest and equipment washing operations that are likely associated with diversions for other agricultural uses and not a direct diversion for PROC use.

Add a Beneficial Use for Sport Fishing (COMM) to Table II-1

Designation Needing a Change: Based on this observation that sport fishing is widespread along the San Joaquin River and will expand in the future, the sport and recreational beneficial (COMM) use should be added to Table II-1 in the Basin Plan as an existing use for Reach 83 of the San Joaquin River.

Reason for the Recommendation: Sport and recreational fishing is widespread along Reach 83 of the Lower San Joaquin River. This use has been present for several decades and as urbanization of the areas to the east and west of the river continue, this use can be expected to increase as well. The quality of this use may vary or be limited by flow variations, including low flow conditions but it will not preclude the attainment of this use.

Add a Beneficial Use for Wildlife Refuges (BIOL) to Table II-1

Designation Needing a Change: Because of the expanding use of water on the San Joaquin River National Wildlife Refuge and the need to protect critical riparian habitat, it is recommended that a new beneficial use of BIOL be designated for Reach 83 of the Lower San Joaquin River in Table II-1 in the Basin Plan. The present beneficial use definition for **Preservation of Biological Habitats of Special Significance (BIOL)** serves and describes the uses that need to be protected. The present definition of “*Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection*” serves this need.

Reason for the Recommendation: An increasing wildlife use of Reach 83 of the Lower San Joaquin River will be future development of the San Joaquin River National Wildlife Refuge on what was the Faith Ranch. The U.S. Fish and Wildlife Service purchased a conservation easement on most of the Faith Ranch in 1997. At that time the Faith Ranch was owned by Robert Gallo. The place of use designation for the RJ Gallo statement of water use (S014002) now shows that part of the San Joaquin River National Wildlife Refuge is included in the place of use.

TABLE A. BENEFICIAL USE DEFINITIONS DESCRIBED IN THE BASIN PLAN

(The beneficial uses, and abbreviations, listed below are standard basin plan designations.)

Municipal and Domestic Supply (MUN) - Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Agricultural Supply (AGR) - Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation (including leaching of salts), stock watering, or support of vegetation for range grazing.

Industrial Service Supply (IND) - Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.

Industrial Process Supply (PRO) - Uses of water for industrial activities that depend primarily on water quality.

Ground Water Recharge (GWR) - Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.

Freshwater Replenishment (FRSH) - Uses of water for natural or artificial maintenance of surface water quantity or quality.

Navigation (NAV) - Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.

Hydropower Generation (POW) - Uses of water for hydropower generation.

Water Contact Recreation (REC-1) - Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.

Non-contact Water Recreation (REC-2) - Uses of water for recreational activities involving proximity to water, but where there is generally no body contact with water, nor any likelihood of ingestion of water. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

Commercial and Sport Fishing (COMM) - Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

Aquaculture (AQUA) - Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

Warm Freshwater Habitat (WARM) - Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Cold Freshwater Habitat (COLD) - Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

Estuarine Habitat (EST) - Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).

Wildlife Habitat (WILD) - Uses of water that support terrestrial or wetland ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats or wetlands, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

Preservation of Biological Habitats of Special Significance (BIOL) - Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection.

Rare, Threatened, or Endangered Species (RARE) - Uses of water that support aquatic habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.

Migration of Aquatic Organisms (MIGR) – Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

Spawning, Reproduction, and/or Early Development (SPWN) - Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

Shellfish Harvesting (SHELL) - Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sports purposes.

| TABLE B | | | | | | | | | | | | | | | | | | | |
|---|-----------------------------------|-------------------|--------------------------------------|--|----------------|----------|----------------|-------|------------|--------------------------|------------------|------------------------|------|-----------|----------|----------|----------|--------------------------|-------------------|
| TABLE II-1 SAN JOAQUIN RIVER BENEFICIAL USES DESIGNATED IN THE BASIN PLAN | | | | | | | | | | | | | | | | | | | |
| REACH NUMBER | SAN JOAQUIN RIVER REACH | HYDRO UNIT NUMBER | MUN MUNICIPAL AND DOMESTIC SUPPLY | AGRICULTURE | | INDUSTRY | | | RECREATION | | | FRESHWATER HABITAT (2) | | MIGRATION | | SPAWNING | | WILD WILDLIFE HABITAT | NAV NAVIGATION |
| | | | | AGR | | PROC | IND | POW | REC-1 | | REC-2 | WARM | COLD | MIGR | | SPWN | | | |
| | | | | IRRIGATION | STOCK WATERING | PROCESS | SERVICE SUPPLY | POWER | CONTACT | CANOEING AND RAFTING (1) | OTHER NONCONTACT | WARM | COLD | WARM (3) | COLD (4) | WARM (3) | COLD (4) | | |
| 69 | Friant Dam to Mendota Pool | 545 | E | E | E | E | | | E | E | E | E | E | E | E | P | E | | |
| 70 | Mendota Dam to Sack Dam | 545.1 | P | E | E | E | | | E | E | E | E | E | E | E | P | E | | |
| 71 | Sack Dam to Mouth of Merced River | 535.7 | P | E | E | E | | | E | E | E | E | E | E | E | P | E | | |
| 83 | Mouth of Merced River to Vernalis | 535/541 | P | E | E | E | | | E | E | E | E | E | E | E | | E | | |
| (1) Shown for streams and rivers only with the implication that certain flows are required for this beneficial use. | | | | Data in this Table is taken from Table II-1 in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin | | | | | | | | | | | | | | | |
| (2) Resident, does not include anadromous. Any segments with both COLD and WARM beneficial use designations will be considered COLD water bodies for the application of water quality objectives. | | | | NOTE: Surface water with the beneficial uses of Groundwater Recharge (GWR), Freshwater Replenishment (FRSH), and Preservation of Rare and Endangered Species (RARE) have not been identified in this plan. Surface waters of the Sacramento and San Joaquin River Basins falling within these beneficial use categories will be identified in the future as part of the continuous planning process to be conducted by the State Water Resources Control Board. | | | | | | | | | | | | | | | |
| (3) Striped bass, sturgeon, and shad. | | | | LEGEND: E = EXISTING BENEFICIAL USE P = POTENTIAL BENEFICIAL USE L = EXISTING LIMITED BENEFICIAL USE | | | | | | | | | | | | | | | |
| (4) Salmon and steelhead. | | | | | | | | | | | | | | | | | | | |

TABLE C

TABLE II-1 SAN JOAQUIN RIVER BENEFICIAL USES DESIGNATED IN THE BASIN PLAN

| REACH NUMBER | SAN JOAQUIN RIVER REACH | HYDRO UNIT NUMBER | MUN MUNICIPAL AND DOMESTIC SUPPLY | AGRICULTURE | | INDUSTRY | | | RECREATION | | | FRESHWATER HABITAT (2) | | MIGRATION | | SPAWNING | | WILDLIFE | | NAV | |
|--------------|-----------------------------------|-------------------|--------------------------------------|-------------|----------------|-------------------|----------------|-------|------------|--------------------------|------------------|------------------------|------|-----------|----------|----------|----------|----------|------------------|-----|----------|
| | | | | AGR | | PROC | IND | POW | REC-1 | | REC-2 | COMM | WARM | COLD | MIGR | | SPWN | | WILD | | BIOL |
| | | | | IRRIGATION | STOCK WATERING | PROCESS | SERVICE SUPPLY | POWER | CONTACT | CANOEING AND RAFTING (1) | OTHER NONCONTACT | SPORT FISHING | WARM | COLD | WARM (3) | COLD (4) | WARM (3) | COLD (4) | WILDLIFE HABITAT | | PRESERVE |
| 69 | Friant Dam to Mendota Pool | 545 | E | E | E | E | | | E | E | E | | E | E | E | E | E | P | E | | |
| 70 | Mendota Dam to Sack Dam | 545.1 | P | E | E | E | | | E | E | E | | E | | E | E | E | P | E | | |
| 71 | Sack Dam to Mouth of Merced River | 535.7 | P | E | E | E | | | E | E | E | | E | | E | E | E | P | E | | |
| 83 | Mouth of Merced River to Vernalis | 535/541 | P ⁽¹¹⁾ | E | E | L ⁽¹²⁾ | | | E | E | E | E | E | | E | E | E | | E | E | |

(1) Shown for streams and rivers only with the implication that certain flows are required for this beneficial use.

(2) Resident, does not include anadromous. Any segments with both COLD and WARM beneficial use designations will be considered COLD water bodies for the application of water quality objectives.

(3) Striped bass, sturgeon, and shad.

(4) Salmon and steelhead.

(11) Municipal and Domestic Supply is limited to incidental use during recreational activities by fisherman, campers and other day-use activities.

(12) Not likely to be a use in the future other than incidental use during agricultural field harvest associated with diversions for other agricultural uses.

Data in this Table is taken from Table II-1 in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin

LEGEND:
E = EXISTING BENEFICIAL USE
P = POTENTIAL BENEFICIAL USE
L = EXISTING LIMITED BENEFICIAL USE

NOTE:
Surface water with the beneficial uses of Groundwater Recharge (GWR), Freshwater Replenishment (FRSH), and Preservation of Rare and Endangered Species (RARE) have not been identified in this plan. Surface waters of the Sacramento and San Joaquin River Basins falling within these beneficial use categories will be identified in the future as part of the continuous planning process to be conducted by the State Water Resources Control Board.